In the Drawing Figures

Please CANCEL the drawing figures 9, 10, 11, and 12 that were previously submitted.

REMARKS

Applicant respectfully requests reconsideration of this application, as amended herein, and reconsideration of the Final Office Action mailed February 17, 2006, and the Advisory Action mailed September 21, 2006. Claims 12 and 17 are being amended and claims 13-15 are being withdrawn by this Response. Thus, claims 1-12 and 16-18 are pending in the application.

Applicant states that no new matter is being added by the Amendment of claims 12 and 17. Further, the amendments made to claims 12 and 17 are for the correction of mere formalities, clarification of recited elements, and do not require further substantive examination and place the application in better condition for allowance.

As a preliminary matter, Applicant acknowledges with thanks the examiner's instructions concerning submission of the information provided in the attached Declarations, and indications that such information provides sufficient evidence to overcome the standing rejections. Should the examiner find any deficiency in the format of the Declarations submitted herewith, Applicant respectfully requests that the examiner contact the undersigned counsel for Applicant to resolve any such deficiencies.

1. Objection to Amendment Filed November 23, 2005.

The Examiner objected to the amendment filed November 23, 2005, and resubmitted January 6, 2006, stating that such amendment introduces new matter into the disclosure. Applicant hereby cancels the Amendments to the Specification and Drawing Figures submitted on November 23, 2005, and re-submitted January 6, 2006. Applicant respectfully submits that the cancellation of the Amendments identified above overcome the objection and thus requests withdrawal of the objection.

2. Election/Restriction.

Applicant acknowledges that claims 13-15 have been withdrawn from consideration by the examiner as being directed to a non-elected invention. Applicant reserves the right to further pursue such claims in a continuation application.

3. Rejection of Claims 1-11 and 16-18 Under 35 U.S.C. §112

Claims 1-11 and 16-18 were rejected under 35 U.S.C. §112, first paragraph, the examiner stating that "[t]he specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims." Office Action of June 8, 2005, page 2. However, the examiner indicated in the Office Action of February 17, 2006, that data previously submitted would overcome such rejection if submitted in the form of a declaration under 37 C.F.R. §1.132.

Attached hereto as Exhibit 1 and incorporated herein by reference is the 37 C.F.R. 1.132 declaration of Dr. Pamela E. Bechtel, which declaration confirms that the csPCNA isoform exists in various cancers, and which confirms that such fact was available at the time that the instant application was filed. More particularly, Dr. Bechtel's Declaration notes that she submitted a doctoral dissertation entitled "Proliferating Cell Nuclear Antigen in Malignancy" to the faculty of the Graduate School of the University of Maryland in 1998, which dissertation "describes and evidences the presence of a cancer specific isoform of proliferating cell nuclear antigen (csPCNA) in various malignant cell lines, including malignant prostate cells, colon cells, brain and cervical cells, and leukemia cells." Exhibit 1, ¶ 3-8. As Dr. Bechtel's dissertation was submitted in May, 1998, such data (confirming that csPCNA is present in various malignant cell lines) was available at the time that the instant application was filed.

Applicant notes that Dr. Bechtel is also a co-author, along with co-inventors Robert J. Hickey and Linda H. Malkas, of an article entitled "An Altered Form of Proliferating Cell Nuclear Antigen in Various Cancers," which article was included as part of Dr. Bechtel's above-referenced dissertation (hereinafter "the Bechtel Reference").

The Bechtel Reference also lists non-inventors Lori N. Croisetiere, Brian J. Long, Moseh Talpaz, and Lawrence Chin. Attached hereto as Exhibits 2-4 and incorporated herein by reference are the 37 C.F.R. §1.132 declarations of inventors Bechtel, Hickey, and Malkas, respectively, confirming that the Bechtel Reference is in fact Applicant's own work. More particularly, as set forth in Exhibits 2-4, each of inventors Bechtel, Hickey, and Malkas were co-inventors "of the subject matter which is disclosed in this publication and disclosed and claimed in the above-referenced patent application," Exhibits 2-4, ¶ 2, such that the Bechtel Reference reflects their own work. None of authors Croisetiere, Long, Talpaz, or Chin are "inventors of the subject matter described in the above-referenced article or in the above-referenced patent application, but were listed as co-authors of the above-referenced article in order to receive credit for having collaborated in the research program by contributing to the program." *Id.* ¶ 4-8. "One's own work may not be considered prior art in the absence of a statutory basis." *Riverwood Int'l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 6 U.S.P.Q.2d 1331, 1338 (Fed. Cir. 2003). As the subject matter ("work") disclosed in the Bechtel Reference and disclosed and claimed in the instant application is the Applicants' own work, it cannot be properly cited against the instant application.

From the various examples presented in Dr. Bechtel's dissertation, it is shown that the csPCNA isoform resolves at exactly the same isoelectric point (pI) in all of the samples and represents a single distinct isoform, such that the csPCNA isoform represents a general biomarker for the detection of malignancy, regardless of the type of cancer. As the csPCNA isoform serves as a general biomarker for the detection of malignancy regardless of the type of cancer, and as such fact was known at the time that the instant application was filed, the original specification at page 10, lines 10-17[1] properly conveys to a person of ordinary skill in the art that the claimed method for purifying csPCNA and the claimed immunoassay for detecting csPCNA are applicable to any cancer, and not just to breast cancer.

[1] The specification as originally filed provides at page 10, lines 10-17: "The source of the tissue or body fluid is from a subject afflicted with a cancer. The particular cancer is not critical to the present invention. The cancers can be carcinomas, sarcomas, lymphomas, or leukemias. Examples of such cancers include cervical carcinoma, mammary gland carcinaoma of ductal or lobular origin, gliomas, prostate, lung, esophageal, stomach, and ovarian cancer."

Moreover, even in unpredictable arts, a specification need not disclose every example or species covered by a claim:

> To require such a complete disclosure would apparently necessitate a patent application or applications with "thousands" of examples .... [M]ore importantly, such a requirement would force an inventor seeking adequate patent protection to carry out a prohibitive number of actual experiments. This would tend to discourage inventors from filing patent applications in an unpredictable area since the patent claims would have to be limited to those embodiments which are expressly disclosed. A potential infringer could readily avoid "literal" infringement of such claims by merely finding another analogous catalyst complex which could be used.

In re Angstadt, 190 U.S.P.Q. at 218. In the instant application the disclosure of the csPCNA isolation, purification and detection from a line of breast cancer cells provides more than sufficient enablement to one of ordinary skill in the art. The application of the various procedural steps taken and described in the specification would allow one to make and use the present invention across the broad spectrum of cancer types claimed and described by the instant application.

Still further, neither Tomic et al, Proc. American Assn. For Cancer research, Abstract No. 2507, vol. 42 page 466 (3/01) (hereinafter "Tomic") nor the specification herein state that the acidic form of PCNA (csPCNA) is specific to breast cancer cells alone. Tomic and the specification (page 3) state that in malignant (cancerous) cells the acidic form of PCNA exists and can be detected and that in non-malignant cells csPCNA does not exist. In the Tomic reference, the example (cell type) used to form the basis of proof for this was malignant/non-malignant breast cells. However, the instant application originally disclosed that the particular tissue or body fluid, source of tissue or body fluid, and even the type of cancer is not critical because the csPCNA isoform exists in all cancerous cell lines/types, regardless. Such a statement in the instant application is not one of mere unsupported conclusory logic but had been arrived at through painstaking and novel inventive industry by the inventors of the instant application as is reflected in the works cited by the Examiner and referenced in the 37 C.F.R. §1.132 Declaration of Pamela E. Bechtel, described previously and being submitted herein. Thus, the disclosure supports the full breadth of the claims presented by the instant application.

With the csPCNA identified as existing in malignant cell types, the number of examples used to illustrate the invention is irrelevant. In each cancer type the csPCNA exists and can be isolated, purified, and detected utilizing the methods and techniques claimed by the instant application and described in the specification.

In summary and in light of the foregoing, undue experimentation would not be required to use the claimed invention with any cancer, and the specification as originally presented enables any person of ordinary skill in the art to use the invention commensurate in scope with the claims set forth herein. Thus, Applicant respectfully requests withdrawal of the rejection of claims 1-11 and 16-18 under 35 U.S.C. §112.

4. Rejection of Claims 4-5, 9-10, and 16-17 Under 35 U.S.C. §102.

Claims 4-5, 9-10, and 16-17 were rejected under 35 U.S.C. §102(a) as being anticipated by Tomic et al, Proc. American Assn. For Cancer research, Abstract No. 2507, vol. 42 page 466 (3/01) (hereinafter "Tomic") as evidence by Gary et al JBC vol. 272 p. 24522 (1997) (hereinafter "Gary"). Applicant respectfully submits that the 37 C.F.R. §1.132 declarations submitted by inventors Robert J. Hickey, Linda H. Malkas, Lauren Schnaper, Derek Hoelz, and Dragana Tomic (attached hereto as Exhibits 5-9, respectively, and incorporated herein by reference) overcome this rejection by proving that the Tomic reference is in fact Applicants' own work.

More particularly, "[o]ne's own work may not be considered prior art in the absence of a statutory basis." *Riverwood Int'l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 6 U.S.P.Q.2d 1331,at 1338 (Fed. Cir. 2003). Tomic is an abstract that is authored by inventors L.H. Malkas (aka., Linda H. Malkas), R.J. Hickey (aka., Robert J. Hickey), D.J. Hoelz (aka., Derek J. Hoelz), L. Schnaper (aka., Lauren Schnaper), and D. Tomic (aka., Dragana Tomic), all of whom "are co-inventors of the above-referenced patent application and co-authors of the above-referenced article," exhibits 5-9, ¶ 3, such that the Tomic reference reflects their own work. While Tomic also lists P. Wills and C. Lankford, "P. Wills and C. Lankford are named as co-authors in the above-referenced article but are not inventors of the subject matter described in the above-referenced article or in the above-referenced patent application, but were listed as co-authors of the above-referenced article in order to receive credit for having collaborated in the research

program by contributing to the program by providing materials." Exhibits 5-9, ¶ 4. As a result, the invention was **not** known or used **by others** in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, as required by this statutory rejection. Applicant therefore respectfully submits that the Tomic reference must be withdrawn as a prior art reference because it is the work of the inventors/applicants of the instant application and it does not provide a statutory basis for rejection.

Further, anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *W.L. Gore & Assocs. v. Garlock*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). "[A]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). With respect to the Gary reference, Gary does identify that a specific region of PCNA interacts with XPG, a homolog of FEN1, which was disclosed in the specification of the instant application on Page 4, Line 29, through Page 5, Line 6. However, the isolation, purification, and detection of the presence of the csPCNA isoform in malignant cells, as recited in claims 1 and 4 of the instant application, is not disclosed by Gary. It is also noted that since Tomic is an invalid reference and cannot be considered, the Gary reference does not provide a basis for a §102(a) rejection.

In light of the foregoing, Applicant respectfully requests withdrawal of the §102(a) rejection, and allowance of claims 4-5, 9-10, and 16-17.

5. Rejection of Claims 4-8 Under 35 U.S.C. §103.

Claims 4-11 and 16-17 were rejected under 35 U.S.C. §103(a) as being unpatentable under Tomic in view of Gary and U.S. Patent 6,514,713 ("Knott"). Applicant respectfully submits that the 37 C.F.R. §1.132 declarations (included herein) by the inventors of the current invention (Exhibits 5-9 hereto) prove that the Tomic reference is the Applicant's own work. Thus, for the reasons stated above with respect to

the §102(a) rejection, Applicant respectfully submits that Tomic is not a valid prior art reference, and thus requests withdrawal of the §103(a) rejection, and allowance of claims 4-11 and 16-17.

Further, as previously explained, the Knott reference (presumably U.S. Patent No. 6,514,713) and the Gary reference both fail to disclose the isolation, purification, and detection of csPCNA found in malignant cells, as recited by claims 1 and 4 of the instant application. Knott discloses a method for detecting the presence of the mutated BRCA1 gene that can be found in various types of cancer cells. This is not the current invention or the invention claimed in the instant application.

Still further, "[i]f identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue." *In re Rouffet*, 149 F.3d 1350, 47 U.S.P.Q.2d 1453, 1457 (Fed. Cir. 1998). Looking at the argument presented by the Examiner, it appears that the Examiner is attempting to use Gary's general disclosure of XPG interacting with PCNA and Knott's disclosure of an ELISA for the detection of breast cancer to arrive at the instant invention, which teaches the isolation, purification, and detection of csPCNA found in all cancer types. This line of reasoning would appear to lead to the conclusion that since XPG interaction is known and ELISA detection is known, any invention utilizing either or both of these features is inherently unpatentable. To follow the Examiner's argument to its logical conclusion the public policy of the patent system, encouraging inventive endeavors through granting of limited time, exclusionary protections, would be thwarted. Therefore, because Gary and Knott either alone or in combination do not disclose, teach, or suggest the method of isolating, purifying, and detecting csPCNA in various cancer cell lines as recited in the claims of the instant invention, Applicant respectfully requests withdrawal of the §103 rejection and allowance of claims 4-11 and 16-17.

6. Rejection of Claims 12 and 17 Under 35 U.S.C. §112.

Claims 12 and 17 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. The Examiner stated that claim 12 is confusing because it is not clear if the terminology "is used to produce antibodies..." is to be

another step or intended use. The Examiner also stated that the dependency of claim 17 is unclear. Applicant respectfully submits that the amendment of claims 12 and 17 obviate these rejections and place these claims in condition for allowance. Therefore, Applicant respectfully requests withdrawal of the §112, second paragraph rejection.

CONCLUSION

In light of the forgoing, reconsideration and allowance of the claims is earnestly solicited. Accordingly, notification to that effect is earnestly requested. In the event that issues arise in the application which may readily be resolved via telephone, the Examiner is kindly invited to telephone the prosecuting attorney, identified below, at (410) 347-8754 to facilitate prosecution of the application.

Respectfully submitted,

Dated: November 22, 2006

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